



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/684,886

10/06/2000

John G. McDonough

TI-31698

3082

7590

11/16/2004

RONALD O. NEERINGS

Texas Instruments Incorporated

P. O. Box 655474, M.S. 3999

Dallas, TX 75265

EXAMINER

CHANG, EDITH M

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s) <input checked="" type="checkbox"/>
	09/684,886		MCDONOUGH, JOHN G.
	Examiner	Art Unit	
	Edith M Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 18-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Remarks

1. Applicant's arguments, see pages 11 to 18, filed June 30, 2004, with respect to the rejection(s) of claim(s) 1-29 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Strich and Chen.

Claim Objections

2. Claims 2-9, 12-14, 16, 18-29 are objected to because of the following informalities:

Claim 2, line 5 & Claim 12, line 4: "sample stream selection commands" is suggested changing to "the sample stream selection commands"

Claim 5, line 3: "sample streams" is suggested changing to "the plurality of sample streams".

Claim 16, line 3: "commands" is suggested changing to "the sample stream selection commands".

Claim 23, line 3: "comprising" is suggested changing to "comprising steps of:"; line 6: "a sample stream" is suggested changing to "a sample stream from the plurality of sample streams".

Claim 24, line 2: "comprising" is suggested changing to "comprising the step of"; line 4: "sample stream selection commands" is suggested changing to "the sample stream selection commands".

Art Unit: 2637

Claim 25, line 4: "sample stream selection commands" is suggested changing to "the sample stream selection commands"; and line 6: "a sample" is suggested changing to "the sample".

Claim 26, line 1: "comprising" is suggested changing to "comprising steps of".

Claims 27, line 7; Claim 28, line 11 & Claim 29, line 12: "sample stream" is suggested changing to "the sample stream".

Claims 3-4, 6-9, 13-14 and 18-22 are directly or indirectly dependent on the objected claims 2, 5, and 23.

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

To claims 1 and 11, the disclosure of FIG.6 of the current application does not teach "each demodulating finger having a sample stream input to accept the plurality of sample streams" cited in the claim 1 lines 5-6 and claim 11 line 4. In FIG.6, each demodulating finger

Art Unit: 2637

has three inputs and each input accepts only one sample stream, one selection input to accept command and one code input to accept walsh code.

To claims 3 and 13, the disclosure of FIG.6 of the current application does not teach “each finger channel includes a stream input *connected to the multiplexer output*” cited in the claims 3 and 6 lines 3-4.

Claims 2, 4-10, 12 and 14-16 are directly or indirectly dependent on rejected claims 1 and 11.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 9, 11-16 and 25-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9, line 1: “the sample stream” lacks antecedent basis.

Claim 11, line 7: “the selected sample stream” lacks antecedent basis.

Claim 25, line 8: “the providing step” lacks antecedent basis.

Claim 26, lines 3-4: “a sample stream in a plurality of sample streams” is another one sample stream in another one plurality of sample streams or the same cited in the claim 23.

Claim 27, line 2: “receiving a plurality of carriers” lack antecedent basis.

Claim 28, line 5: “the plurality of carriers” lacks antecedent basis.

Claims 12-16, and 29 are directly or indirectly dependent on the rejected claims 11 and 25.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 5-11, 15-16 and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strich et al. (US 6,473,447 B1) in view of Chen et al. (US 6,728,323 B1).

Regarding **claims 1, 6, 11 & 23**, in FIG.10 Strich et al. teaches the receiver with multiple demodulators (elements 420A to 420C) and its method, comprising:

A controller (element 418 combined with 415) to select a sample stream from the signal received from the antenna to data demodulators input (elements 420A to 420C) stated in column 14 lines 44-50; and

A plurality of demodulators (elements 420A to 420C) wherein each demodulator (or demodulating finger) has

an input (the input of the left side of elements 420A to 420C receiving the plurality samples streams from R_I and R_Q as shown in FIG.1) to receive the plurality sample streams from R_I and R_Q of different users in different sectors/coverage areas (the inputs of the left side of elements 420A to 420C receiving the plurality samples streams from R_I and R_Q as shown in FIG.1) transmitted via multiple transmitting antennas (antennas 85 to 90 of FIG.6 & column 14 lines 20-25);

Art Unit: 2637

one input (at the bottom of elements 420A to 420C) connected to the controller (element 418) to receive the commands to select the signal/sample stream associated to each coverage area of a user sectors (column 14 lines 44-50); and

provides *the data* via digital circuitry 416 comprising deinterleaving and decoding (column 14 lines 35-37).

Strich et al. does not explicitly specify *the data* as the soft symbol output. However Chen et al. teaches the mobile with deinterleaving and decoding provides soft symbols in FIG.4, FIG.5 and column 8 lines 60-62. It is well known in the art that the interleaving/deinterleaving provides the soft symbols, as Strich et al. teaching the deinterleaving the demodulated signals in the digital circuitry (element 416 FIG.10), at the time of the invention, it would have been obvious to a person of ordinary skill in the art to have the process to generate soft symbols taught by Chen et al. in Strich et al.'s digital circuitry to provide soft symbols for the purpose of soft decoding to decode a punctured coded signal (column 3 lines 43-50 & column 4 lines 26-30).

Regarding **claim 5**, in FIG.2, Strich et al. teaches that the signals received at the demodulator converted from signals transmitted from different sectors wherein each SS transmitter transmits the signal via its carrier (column 8 lines 42-45).

Regarding **claims 7, 16 & 27**, in FIG.6, Strich et al. teaches the controller assigns the demodulator 420A to the first sample stream came from the first sector, the demodulator 420B and 420C to the second and third sample streams came from the second and third sectors respectively shown in FIG.2.

Regarding **claims 8 & 28**, Strich et al. modified with Chen et al.'s teaching teaches receiving a first, second, and third carrier in FIG.10 the antenna receiving signals transmitted

Art Unit: 2637

from such as three sectors wherein each SS transmitter of the base station (elements 42, 44 and 46) transmits the signal via its carrier (column 8 lines 42-45); the element 412 converting the first carrier to a first sample stream, the second carrier to a third sample stream and the third carrier to a third sample stream to the first demodulator 420A and the second demodulator 420B; and the controller commands the first demodulator 420A select the first stream from one coverage area (such as U8 of FIG. 1B) of sector one (the residential sector), the demodulator 420B selecting the first stream from another coverage area (such as U9 of FIG. 1B) of the same sector one (the same residential sector).

Regarding **claims 9, 10 & 29**, in FIG. 6 and column 14 lines 41-45, Strich et al. teaches receiving signals from adjacent coverage areas of a business sector having delay/phase shift (stated in column 14 lines 41-50); in FIG. 1B shows the business sector having adjacent coverage areas U2, U3 and U34 with a carrier transmitted by one sector transmitter (as shown in FIG. 2). The controller assigns the three signals with the first delay from the adjacent coverage area U2, with the second delay from the U3 and the third delay from the U4 of the business sector to three demodulators, wherein the business sector bears one carrier.

Regarding **claims 18-21**, in FIG. 1, FIG. 2 & FIG. 10, Strich et al. teaches receiving signals in the cellular CDMA systems (column 3 lines 18-25), it is well known that the CDMA signal comprising channels spreaded by the wash code (the wash code distinguishes the channel), hence the Strich et al.'s receiver modified with Chen et al.'s teachings teaches providing soft symbols from the selected spreaded information channel by despread the channel information with the wash code.

Regarding **claim 22**, Strich et al. teaches selecting each sample stream from the different users in different sectors/coverage areas (FIG.1) from multiple transmitting antennas (antennas 85 to 90 of FIG.6 & column 14 lines 20-25) and providing soft symbols from the selected stream.

Regarding **claims 24-25**, in FIG.10, Strich et al. modified with Chen et al.'s teaching teaches the controller (element 418) communicating selection commands to each demodulating finger (elements 420), each demodulator accepts sample streams from the receiver 412, and provides the soft symbols from the sample streams via digital circuitry 416 comprising deinterleaving and decoding the soft symbols (column 14 lines 35-37).

Regarding **claim 26**, in FIG.2, Strich et al. teaches that the signals received at the demodulator converted from signals transmitted from such as three sectors wherein each SS transmitter (elements 42, 44 and 46) transmits the signal via its carrier (column 8 lines 42-45), hence there are three sample streams each with its carrier. In FIG.10, the analog receiver (412 FIG.10) converting each carrier to a sample stream in the received signals.

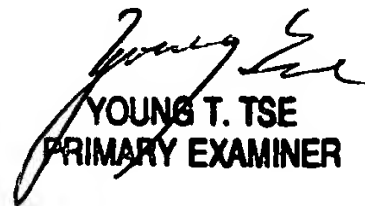
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2637

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
November 7, 2004



YOUNG T. TSE
PRIMARY EXAMINER